

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

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In re Application of:	:	Examiner: Erin Barry Saad
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Erwin BAYER et al.	:	
	:	
For: FRICTION-WELDING DEVICE	:	
	:	
	:	Art Unit: 1793
Filed: November 7, 2005	:	
	:	
Serial No.: 10/538,519	:	
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Signature: /Helen Tam/
Helen Tam

REPLY BRIEF PURSUANT TO 37 C.F.R. § 41.41

SIR:

This paper is responsive to the “Examiner’s Answer” dated October 29, 2009 in connection with the above-captioned application. For the reasons more fully set forth below and in the “Appeal Brief Pursuant to 37 C.F.R. § 41.37” (“the Appeal Brief”), filed on August 19, 2009, it is respectfully submitted that the present rejections should be reversed.

I. ARGUMENTS

A. Rejection of Claims 10 to 12, 14, 15, 20, and 21 Under 35 U.S.C. § 103(a)

Claims 10 to 12, 14, 15, 20, and 21 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Tsujino and Mattes. It is respectfully submitted that the combination of Tsujino and Mattes does not render unpatentable the presently pending claims for at least the following reasons.

Claim 10 relates to a friction-welding device for integrally joining components, each component including a welding surface, including, *inter alia*, the features

of an oscillator, a compression device, and *a cartridge adapted to accommodate the one of the components outside of a welding zone*, in which *the oscillator includes an even number of piezoactuators arranged in pairs at least approximately on a line of application*.

The combination of Tsujino and Mattes does not disclose, or even suggest, all of the features included in claim 10. For example, Tsujino merely indicates a sealing cap 1 and a substrate 2 between a base 9 and a bonding head 4. (Tsujino, col. 3, lines 30 to 50; and Figures 1 and 2). However, nowhere does Tsujino disclose a cartridge adapted to accommodate the one of the components outside of a welding zone. Nonetheless, the Final Office Action at pages 5 to 6 asserts that bonding head 4 constitutes a cartridge accommodating the one of the components. In this regard, Tsujino plainly states that “the bonding head 4 is placed on the upper face 1b of the sealing cap 1.” (Tsujino, col. 3, lines 55 to 56). Thus, the bonding head 4 of Tsujino merely applies compressive force F on the upper face 1b of the sealing cap 1, and does not constitute a cartridge accommodating the one of the components. Therefore, Tsujino does not disclose, or even suggest, the feature of *a cartridge adapted to accommodate a component outside of a welding zone*, as provided for in the context of claim 10.

The Advisory Action at page 2 maintains that the bonding head 4 of Tsujino constitutes a cartridge and states that “[a]s defined by Merriam-Webster online dictionary, a cartridge is defined as ‘a case or container for holding a substrate.’” However, it is respectfully submitted that the bonding head 4 of Tsujino does not constitute a case or container for holding a substrate. Instead, the bonding head 4 merely presents a flat surface that contacts upper face 1b of sealing cap 1. Accordingly, the bonding head 4 of Tsujino does not constitute a cartridge, even using the dictionary definition provided in the Advisory Action. Furthermore, while the bonding head 4 of Tsujino may constitute a compression device that applies a downward force F, it does not constitute the separate feature of a cartridge, as provided for in the context of claim 10. Therefore, Tsujino does not disclose, or even suggest, the feature of *a cartridge adapted to accommodate a component outside of a welding zone*, as provided for in the context of claim 10.

The Examiner’s Answer at page 6 maintains that “the bonding head of Tsujino is considered a cartridge because it *contains* the component by holding down and preventing movement of the component during welding.” However, as set forth above, it is respectfully

submitted that the bonding head 4 of Tsujino does not constitute a *cartridge*, as provided for in the context of claim 10, and as described in the Substitute Specification, e.g., at page 5, lines 10 to 17, and Figures 2 to 4. Accordingly, the bonding head 4 of Tsujino does not constitute the feature of *a cartridge adapted to accommodate a component outside of a welding zone*, as provided for in the context of claim 10.

Further, Mattes also does not disclose, or even suggest, the feature of *a cartridge adapted to accommodate a component outside of a welding zone*, and thus, fails to cure this critical deficiency.

In addition, nowhere does Tsujino disclose the oscillator includes an even number of piezoactuators arranged in pairs at least approximately on a line of application. Instead, Tsujino merely indicates piezoelectric transducers 7, 8 coupled to oscillation transmitting hones 5, 6 “that are in an orthogonal direction to the welding head 4.” (Tsujino, col. 3, lines 37 to 42; and Figure 1). Thus, the piezoelectric transducers 7, 8 are situated orthogonal to each other, and not in pairs at least approximately on a line of application. Therefore, Tsujino does not disclose, or even suggest, the feature of *the oscillator includes an even number of piezoactuators arranged in pairs at least approximately on a line of application*, as provided for in the context of claim 10.

The Advisory Action at page 2 maintains that Tsujino discloses the features included in claim 10 and states that “[w]hile the piezoactuators/oscillating transmitting hones of Tsujino are orthogonal, they are still arranged in pairs, as there are two (even number) next to each other on a line of application (same axis).” It is not understood how two actuators that are clearly orthogonal to one another can be considered to be arranged on a line of application, or on the same axis. In this regard, the forces imparted by each of the actuators of Tsujino plainly come together at a right angle at the bonding head 4. Furthermore, Tsujino at column 4, lines 8 to 13, specifically teaches away from linear oscillation in favor of two dimensional oscillation such as circular or elliptical. Therefore, Tsujino does not disclose, or even suggest, the feature of *the oscillator includes an even number of piezoactuators arranged in pairs at least approximately on a line of application*, as provided for in the context of claim 10.

The Examiner's Answer at pages 6 and 7 maintains that "[e]ven though the piezoactuators/elements of Tsujino are orthogonal to the welding head 4, they are still on a line of application." Although the orthogonal transducers 7, 8 of Tsujino may be in the same plane of application, as illustrated in the Examiner's Answer at page 7, it is respectfully submitted that they are clearly not arranged on a line of application. Claim 10 also includes the feature that *the piezoactuators [are] prestressable with respect to the cartridge ... from opposite sides*, which further clarifies the above-recited feature of *piezoactuators arranged on a line of application*. In contrast, the orthogonal transducers 7, 8 of Tsujino are not arranged on a line of application such that they are prestressable from opposite sides. Accordingly, the orthogonal transducers 7, 8 of Tsujino do not constitute the feature of *an even number of piezoactuators arranged in pairs at least approximately on a line of application*, as provided for in the context of claim 10.

Further, Mattes also does not disclose, or even suggest, the feature that *an oscillator includes an even number of piezoactuators arranged in pairs at least approximately on a line of application*, and thus, fails to cure this critical deficiency.

Accordingly, it is respectfully submitted that the combination of Tsujino and Mattes does not disclose, or even suggest, all of the features included in claim 10. Therefore, it is respectfully submitted that the combination of Tsujino and Mattes does not render unpatentable the presently pending claim for at least the foregoing reasons.

As for claims 11, 12, 14, 15, 20, and 21, which depend from claim 10 and therefore include all of the features included in claim 10, it is respectfully submitted that the combination of Tsujino and Mattes does not render unpatentable these dependent claims for at least the reasons more fully set forth above.

In view of all of the foregoing, reversal of this rejection is respectfully requested.

B. Rejection of Claim 13 Under 35 U.S.C. § 103(a)

Claim 13 was rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Tsujino, Mattes, Stoecklein et al., and Culpepper. It is respectfully submitted

that the combination of Tsujino, Mattes, Stoecklein et al., and Culpepper does not render unpatentable the present claim for at least the following reasons.

Claim 13 depends from claim 10 and therefore includes all of the features included in claim 10. As more fully set forth above, the combination of Tsujino and Mattes does not disclose, or even suggest, the features of *a cartridge adapted to accommodate components outside of a welding zone and an oscillator that includes an even number of piezoactuators arranged in pairs at least approximately on a line of application*, as provided for in the context of claim 10. Stoecklein et al. and Culpepper also do not disclose, or even suggest, the features of *a cartridge adapted to accommodate components outside of a welding zone and an oscillator that includes an even number of piezoactuators arranged in pairs at least approximately on a line of application*, and thus, fail to cure these critical deficiencies.

Accordingly, it is respectfully submitted that the combination of Tsujino, Mattes, Stoecklein et al., and Culpepper does not disclose, or even suggest, all of the features included in claim 10, from which claim 13 depends. As such, it is respectfully submitted that the combination of Tsujino, Mattes, Stoecklein et al., and Culpepper does not render unpatentable claim 13, which depends from claim 10.

In view of all of the foregoing, reversal of this rejection is respectfully requested.

II. CONCLUSIONS

For at least the reasons indicated above and those set forth in the Appeal Brief, Appellants respectfully submit that the art of record does not disclose or suggest the subject matter as recited in the claims of the above-identified application. Accordingly, it is respectfully submitted that the subject matter as set forth in the claims of the present application is patentable.

In view of all of the foregoing, reversal of all outstanding rejections is therefore respectfully requested.

Respectfully submitted,

Dated: December 18, 2009

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